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MISSOURI PUBLIC SERVICE COMMISSION

CASE NO. EA-2015-0146

DIRECT TESTIMONY

OF

DENNIS D. KRAMER

ON

BEHALF OF

AMEREN TRANSMISSION COMPANY OF ILLINOIS

St. Louis, Missouri
May 2015

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DIRECT TESTIMONY

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DENNIS D. KRAMER

CASE NO. EA-2015-0146

I. INTRODUCTION AND WITNESS QUALIFICATIONS

Q. Please state your name, business address and present position.

A. My name is Dennis D. Kramer. I am currently the Senior Director of Transmission Policy, Planning and Stakeholder Relations at Ameren Services Company ("Ameren Services"). Ameren Services provides various support services to Ameren Corporation and its operating subsidiaries, including Ameren Transmission Company of Illinois ("ATXI"). These services include engineering, construction management, planning, finance, accounting and legal services.

Q. Please summarize your educational background and professional experience.

A. I graduated from Purdue University in 1978 with a Bachelor of Science degree in Electrical Technology with concentrations in power systems and digital electronics. I graduated from Tulane University in 1990 with a Master of Business Administration degree with concentrations in strategic planning and marketing.

I have over 35 years of experience in the electric energy industry. In 1974, I was employed by Public Service Indiana as a regional area operator in the Power Supply organization, with responsibility for directing power transmission and distribution activities. In 1978, I moved into an engineering position where I was responsible for performing system load flow studies to assess the impact of system design modifications on transmission

capacity margins and system operations procedures. I also supported the Supervisory Control and Data Acquisition ("SCADA") Systems in the regional control center. In 1979, I transferred to the Power Generation organization as an engineer at Gibson fossil power plant where I was responsible for supporting the instrumentation and control systems and computer monitoring systems necessary for the safe and efficient operation of the plant. In 1980, I transferred to the Marble Hill Plant, a 2,200 Megawatt ("MW") electric nuclear project, where I led the plant control instrumentation and control engineering and plant computer engineering activities during construction and system testing.

In 1984, I accepted a management position with Entergy Corporation at the Waterford III 1,100 MW electric nuclear power plant. I managed engineers, programmers and technicians performing the installation, testing and operational support of plant control and monitoring systems. In 1988, I accepted the position of Manager, Marketing Services in the retail and wholesale marketing organization of Entergy Corporation. I managed analysts and researchers in creating and implementing customer research plans and the development of preferred product/service portfolios.

In 1994, I accepted the position of Director, Technical Services with Unimar Consulting Group Ltd. I directed engineers, analysts and researchers in conducting research and developing portfolios of regulated and non-regulated products and services for client companies including the majority of the top 100 electric utilities in North America. In 1997, I accepted the position of Experienced Manager with the National Energy Consulting Practice of Arthur Andersen. I managed numerous projects which assisted clients in meeting electric deregulation requirements with an emphasis in Texas and California. I worked with clients

and regulatory agencies in developing transmission rules, resource scheduling and dispatch processes and wholesale market operation procedures.

In 2002, I accepted the position of Senior Manager in the Energy Practice of Bearingpoint Corporation. I performed numerous projects with energy clients in North America to improve business processes, increase profitability and reduce operating costs in the areas of power generation, transmission and distribution.

In 2005, I accepted the position of Transmission Policy Specialist with Ameren Services. I assisted in transmission policy development and its communication with Regional Transmission Organization stakeholders and the Midwest Independent Transmission System Operator, Inc. ("MISO")[1]. In 2007, I was promoted to the position of Supervisor, Transmission Policy, and in 2009, I was promoted to the position of Manager of Transmission Policy and Planning. In September 2014, I was given the additional responsibility for overall stakeholder communications and community and public relations relating to the public processes for the routing of transmission assets.

Q. What are your duties and responsibilities in your present position?

A. I am responsible for the development of transmission policy for the transmission-owning companies served by Ameren Services, its communication to stakeholders, and its eventual implementation through MISO and other regulatory agencies. I am also responsible for the overall planning of the transmission system to ensure compliance with North American Electric Reliability Corporation ("NERC") Reliability Standards and other applicable reliability standards. I have additional responsibility for the overall

[1] MISO has since changed its name to the Midcontinent Independent System Operator, Inc.

stakeholder communications, community and public relations, and public process for the routing of transmission assets.

II. PURPOSE AND SCOPE

Q. Are you familiar with the Project that ATXI proposes in its Application filed in this proceeding?

A. Yes. ATXI is proposing to construct what it calls the Mark Twain Project ("Project") in northern Missouri. The Project consists of a 345-kV electric transmission line approximately 95 miles in length and running generally from a new switching station near Palmyra, Missouri,[2] and extending westward to a new substation to be known as the Zachary Substation, which is located near Kirksville, and proceeding north to a connection point on the Missouri-Iowa border, as well as an associated 161-kV connector line located in the Kirksville area. The Project is a portion of a larger portfolio of regional transmission upgrades approved by MISO's Board of Directors pursuant to the provisions of its Energy Markets and Operating Reserves Tariff (the "Tariff"), which has been approved by the Federal Energy Regulatory Commission ("FERC"). ATXI is seeking a conditional Certificate of Public Convenience and Necessity ("CCN") from the Missouri Public Service Commission ("Commission") authorizing it to construct, operate and maintain the proposed transmission lines, which includes the new substation.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to explain why the Mark Twain Project is necessary and beneficial to the regional transmission system and why it benefits Missouri when it is fully integrated in the grid.

[2] This switching station is a part of ATXI's Illinois Rivers Project. *See* File No. EA-2015-0145.

Q. Are you sponsoring any schedules in support of your direct testimony?

A. Yes. I am sponsoring **Schedule DDK-01**, a map depicting MISO's footprint, as support for my direct testimony.

Q. Will you be referring to any other documents during your testimony?

A. Yes. I will refer to several documents that are publicly available on the MISO website (https://www.misoenergy.org):

- The MISO Transmission Expansion Plan 2011, referred to as "MTEP11";
- The MISO Multi Value Project Portfolio Results and Analysis report, referred to as the "MVP Report"; and
- The MISO MTEP14 MVP Triennial Review, referred to as "MVP Triennial Review."

Q. Please generally summarize why the Project is necessary and beneficial for the regional transmission system.

A. The Project is an integral part of a portfolio of Multi-Value Projects ("MVPs") that was approved by the MISO Board of Directors in December 2011 as necessary to facilitate the delivery of renewable energy, resolve numerous reliability issues, reduce transmission line losses, and provide economic and efficiency benefits to customers within the MISO footprint.

Q. Please generally summarize why the Project is beneficial to Missouri.

A. When the Project is fully implemented, it will provide additional transmission capacity to facilitate the delivery of renewable energy resources to Missouri, market efficiency benefits as described by ATXI witness Dr. Todd Schatzki, ongoing local economic

benefits as described by ATXI witness Dr. Geoffrey Hewings and improved reliability and voltage support to the transmission system in northern Missouri as I discuss below.

III. BACKGROUND OF MVP PROJECTS

Q. You have testified that this Project is part of a portfolio of MVPs approved by MISO in 2011. What is MISO?

A. The Midcontinent Independent System Operator, Inc. (MISO) is an independent, not-for-profit, and FERC-approved Regional Transmission Organization ("RTO") responsible for regional transmission planning, reliability assurance and managing competitive electricity markets across all or parts of 15 states, including Missouri, and the Canadian province of Manitoba.[3] MISO's regional area of operations ("footprint") stretches from the Ohio-Indiana line in the east to eastern Montana in the west, and south to New Orleans. **Schedule DDK-01** is a map depicting MISO's footprint. MISO serves as an essential link in the safe, cost-effective delivery of electric power across the central one-third of the country.

As an RTO, MISO is responsible for operational oversight and functional control of the Bulk Electric System ("BES"), the operation of transparent energy markets, and regional and interregional transmission planning activities. MISO is responsible for approving transmission service, new generation interconnections, and new transmission interconnections to and within the MISO footprint, and for ensuring that the system is planned to reliably and efficiently provide for existing and forecasted usage of the transmission system.

[3] In December 2011, MISO consisted of 12 states and the Canadian province of Manitoba.

Q. Please describe the MISO Transmission Expansion Planning (MTEP) process.

A. The first step in the process occurs when Ameren Services, on behalf of the MISO Transmission Owners it supports[4] (and the other MISO Transmission Owners), performs its annual analysis and planning required to maintain the reliability of transmission systems for which Ameren Services provides support. Ameren Services provides information to MISO, including plans for upgrades and additions to the transmission system. MISO reviews the transmission plans from all MISO transmission owners and applies their own analysis to identify synergies between plans and potentially new solutions for identified system problems. MISO reviews and consolidates the individual transmission plans of the MISO Transmission Owners and identifies potential areas where additional benefit can be achieved through coordination of transmission improvements. Additionally, MISO performs targeted system studies, which seek to address regional concerns and issues. The result of the MTEP process is a collection of projects which are needed to address both regional and local system needs and provide desired benefits.

Q. You testified earlier that the Project is an MVP. What are MVPs?

A. An MVP is a relatively new type of transmission project developed by MISO, with stakeholder input, and approved by FERC. An MVP is a project that is evaluated through the MISO MTEP process and determined as being a necessary component of a portfolio of projects whose benefits are spread across the MISO footprint and that meet certain criteria in the MISO tariff.

[4] Ameren Services provides support and transmission planning for the transmission systems of Union Electric Company, Ameren Illinois Company and ATXI.

Q. What are those criteria?

A. In order for a project to be classified as an MVP, it must meet at least one of the following criteria:

Criterion 1

A Multi Value Project must be developed through the transmission expansion planning process to enable the transmission system to deliver energy reliably and economically in support of documented energy policy mandates or laws enacted or adopted through state or federal legislation or regulatory requirement. These laws must directly or indirectly govern the minimum or maximum amount of energy that can be generated. The MVP must be shown to enable the transmission system to deliver such energy in a manner that is more reliable and/or more economic than it otherwise would be without the transmission upgrade.

Criterion 2

A Multi Value Project must provide multiple types of economic value across multiple pricing zones with a Total MVP benefit to cost ratio of 1.0 or higher, where the total MVP benefit to cost ratio is described in Section II.C.7 of Attachment FF to the MISO Tariff. The reduction of production costs and the associated reduction of LMPs from a transmission congestion relief project are not additive and are considered a single type of economic value.

Criterion 3

A Multi Value Project must address at least one transmission issue associated with a projected violation of a NERC or Regional Entity standard and at least one economic-based transmission issue that provides economic value across multiple

pricing zones. The project must generate total financially quantifiable benefits, including quantifiable reliability benefits, in excess of the total project costs based on the definition of financial benefits and Project Costs provided in Section II.C.7 of Attachment FF.

Q. Please explain how the MVP Portfolio was developed

A. In 2008, MISO began the study process by undertaking a Regional Generation Outlet Study ("RGOS") to investigate how best to fulfill various Renewable Portfolio Standards ("RPS") requirements reliably and efficiently by accessing wind resources located across the MISO footprint. The RGOS study was the first step in the three-year detailed analysis of the transmission system that eventually led to the determination that the transmission lines identified as part of the MVP Portfolio are necessary to enable RPS mandates to be met at the lowest total delivered wholesale energy cost. In addition, the MVP Portfolio was designed to enhance and complement the performance of the existing grid to produce a more robust and efficient transmission system. Ameren Services participated in the MISO RGOS and MVP studies over the 2008-2011 timeframe, assessing optimum transmission development to integrate the renewable energy resources necessary to meet the states' renewable energy portfolio standards and maximize the benefits that would ultimately be provided to Ameren Missouri retail customers.

During the study process, MISO and the stakeholders developed a robust business case for the MVPs which demonstrated that not only will the MVP Portfolio reliably enable RPS requirements to be met, but it will do so in a manner where its economic benefits exceed its costs. While the study focused upon the states' RPS requirements, the MVP Portfolio has widespread benefits beyond the delivery of wind and other renewable energy. It will enhance

system reliability and efficiency under a variety of different generation build outs. It will also open markets to competition, reducing congestion and spreading the benefits of low cost generation across the MISO footprint. The projects in the 2011 MVP Portfolio were evaluated against MVP criteria 1 and their ability to reliably enable the renewable energy mandates of the MISO states.

MISO considered multiple future scenarios in the analysis to ensure that the Project's expected benefits will be provided under a range of varying conditions. When implemented, the MVP Portfolio is intended to achieve public policy goals, increase market competition, deliver lower cost generation by reducing transmission system congestion, and enhance the reliability of the regional transmission system under a variety of possible future generation resource mixes.

As a result of this MTEP process, MISO's independent Board of Directors approved in December 2011 several new transmission projects, including the portfolio of 17 MVPs. The MVP Portfolio is a key component of MTEP11. These 17 projects taken together are intended to provide long-term, regional solutions for meeting state renewable energy policies, improving the efficiency of wholesale energy markets and addressing known reliability issues. Finally, the long-term nature of the transmission needs intended to be met by the MVP Portfolio was an important factor in the planning process and, as approved, ensures that the most efficient transmission portfolio is placed in service.

Q. How is the Mark Twain Project related to the projects making up the MVP Portfolio that was approved in MTEP11?

A. The Mark Twain Project is the name given by ATXI to all or portions of two MVPs – numbers 7 and 8 – that are being built by ATXI in Missouri.

Q. What is the anticipated in-service date for the Mark Twain Project?

A. The Project's in-service date is anticipated to be 2018.

IV. BENEFITS OF THE MVP PORTFOLIO AND THE MARK TWAIN PROJECT

Q. What are the benefits of the Mark Twain Project?

A. As an element of the MVP Portfolio of projects, and as discussed by Dr. Schatzki in his direct testimony, the Mark Twain Project will support a reduction in the wholesale cost of energy delivery for the consumer by enabling the delivery of low-cost generation to the load and reducing congestion costs. It will also increase reliability in the northeast portion of Missouri, including the Kirksville area.

Q. What was the justification for including the transmission system enhancements which form the Mark Twain Project in the 2011 MVP Portfolio?

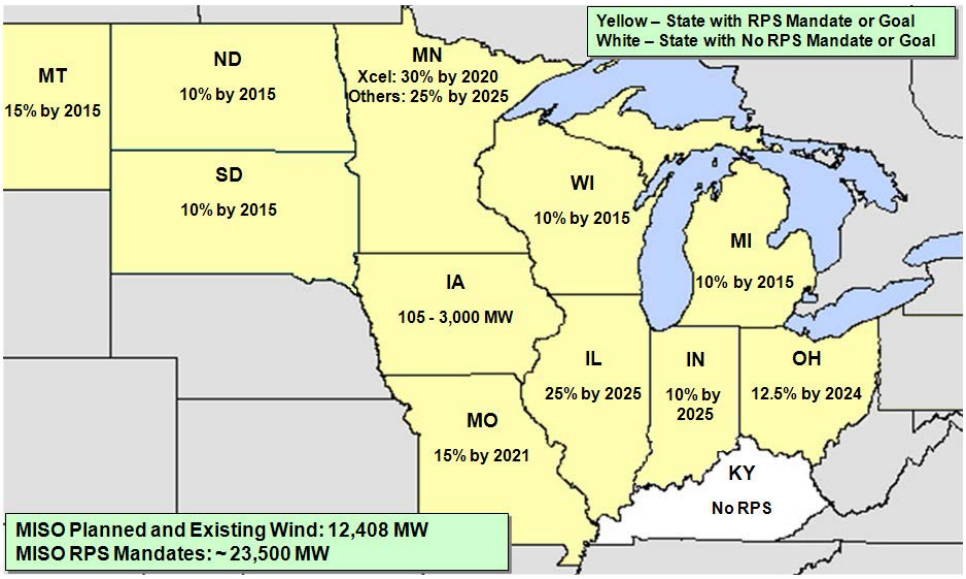
A. The Mark Twain Project was included in the MVP Portfolio based upon the following benefits:

- The Project's 345-kV lines from Ottumwa to Zachary Substation (referred to in MTEP 11 as Adair) to Maywood (referred to in MTEP 11 as the Palmyra Tap) and the 161 kV line from Zachary Substation to Ameren Missouri's existing Adair Substation will provide an outlet for wind generation in the western region of MISO to be delivered to Missouri, as well as provide a path for renewable energy to more densely populated load centers.

- In addition to providing a wind outlet, the new lines will provide reliability benefits by addressing transmission issues in the Kirksville area, including low voltage concerns that could have arisen under certain system conditions.

Q. How does the increased access to wind generation that is to be provided by the Mark Twain Project assist states in meeting their renewable energy portfolio standards?

A. As the MVP Report indicates at page 48, "The projects in the proposed Multi Value Project portfolio were evaluated against criterion 1, which requires the projects to reliably or economically enable energy policy mandates." This was particularly important because 11 of the 12 states in the MISO footprint have enacted RPS requirements or renewable energy goals that require or recommend that various amounts of load be served with energy from renewable energy resources. Figure 3.1 of the MVP Report, set out below, demonstrates this fact:



In its planning analysis, MISO anticipated that the wind resources throughout the MISO footprint would need to be relied upon to meet the RPS mandates.

One of the goals of the RGOS analysis was to design transmission portfolios that would enable RPS mandates to be met at the lowest delivered wholesale energy cost. To accomplish this, the RGOS analysis, with considerable stakeholder input, identified energy zones based upon considerations such as wind capacity and existing infrastructure (such as transmission and natural gas pipelines). The output of MISO's MVP study determined that the MVP Portfolio would enable the delivery of approximately 41 million MWh to help

satisfy MISO state renewable portfolio mandates through 2026. These energy sources are assumed to be spread across the MISO footprint. The RPS requirements for Ameren Missouri alone were estimated by MISO to be approximately 5.8 million MWh through 2021 and approximately 6.2 million MWh through 2026.

MISO has a tariff requirement to conduct a full review of the MVP Portfolio benefits on a triennial basis. Therefore, in 2014, MISO conducted its three-year review of the MVP Portfolio that was approved by the MISO Board of Directors in 2011. MISO's analysis (The MTEP14 MVP Triennial Review) re-demonstrated the portfolio's ability to assist MISO states in meeting the state renewable portfolio mandates. In fact, even though the RPS assumptions had not changed, MISO's review demonstrated that the completed MVP Portfolio would enable even more renewable energy – a total of 43 million MWh of renewable energy to MISO states through 2028. In sum, the triennial review verified one of the important benefits of the MVP Portfolio, which is that it provides these renewable energy sources to the MISO states, including Missouri, to allow them to meet the RPS mandates.

Q. How were the reliability concerns that will be addressed by the Project identified?

A. The reliability benefits of the Project flow from the implementation of the entire Project, not from any one single individual component. During the MVP planning process, Ameren Services identified known reliability concerns that could potentially be addressed by the Project when it is fully implemented and interconnected with the Ameren Missouri system, as well as connected to the 345-kV transmission systems in Iowa and Illinois. In working with the MISO to develop the Project, Ameren Services sought to design the Project to address known reliability concerns where feasible. Ameren Services utilized its

knowledge of load and generation locations, as well as the transmission system topology, in attempting to maximize the reliability benefits provided by the Project.

Q. What are the reliability benefits for the MVPs comprising the Mark Twain Project? Please explain.

A. Ameren Services determined that the northeastern Missouri area, including Kirksville, would be exposed to low voltages for certain contingency conditions at peak load levels. The existing transmission system has three 161-kV lines that supply Ameren Missouri and rural electric cooperative customers located in northeastern Missouri (including Adair, Kirksville, Newark, Novelty, Emerson, etc.). Ameren Services determined that if certain NERC Category C events occurred during peak load periods, then low voltage conditions would occur in northeastern Missouri that could result in the loss of customer load in the area. The addition of the Mark Twain Project will provide a new 345-kV source to the northeastern Missouri area that will maintain adequate system voltages for the identified NERC Category C contingencies and prevent loss of customer loads.

Q. Has MISO analyzed the benefits provided by the MVP Portfolio compared to the portfolio costs?

A. Yes. MISO analyzed the benefits and costs of the MVP Portfolio when it was approved by the MISO Board of Directors in 2011. It should be noted that per FERC Order ER10-1791-000, the MVPs were analyzed as a portfolio and not as individual separate projects.

The analysis of the MVP Portfolio approved in MTEP11 revealed that the MVP Portfolio resulted in total system-wide benefits ranging from 1.8 to 3.0 times its total cost in

2011 dollars. When these system-wide benefits were evaluated for their distribution within the MISO footprint, benefits to Missouri ranged from 1.8 to 3.2 times the costs.

Q. When MISO conducted its triennial review of MTEP11, what was the benefit-cost ratio of the MVP Portfolio as a whole, and what was the benefit-cost ratio for Missouri?

A. When compared to the present value of the revenue requirements for the MVP Portfolio, the MISO MVP Triennial Review found that the portfolio produces total system-wide benefits of between 2.6 to 3.9 times the costs on a present value basis, an increase from the benefit cost ratio of 1.8 to 3.0 determined in the 2011 portfolio justification. Specifically, the 2011 MVP Portfolio was calculated to create $13.1 to $49.6 billion (in 2014 dollars) in net benefits over the next 20 to 40 years, an increase of approximately 50 percent from the calculation performed for MTEP11. When these system-wide benefits were evaluated for their distribution within the MISO footprint, benefits to Missouri had increased from its 2011 analysis, amounting to between 2.3 and 3.3 times the costs.

V. MVP COSTS

Q. How will the costs of the MVP Portfolio and the Project be recovered?

A. The revenue requirements for the projects that are part of the MVP Portfolio are collected from load-serving entities acquiring energy for their customers from MISO through MISO transmission charges. Since the load of Missouri load-serving entities (Ameren Missouri and other Missouri wholesale load-serving entities) represents less than 8% of the total MISO load, the Missouri load-serving entities will pay less than 8% of the transmission charges arising from the Mark Twain Project.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Ameren Transmission Company of Illinois for Other Relief or, in the Alternative, a Certificate of Public Convenience and Necessity Authorizing it to Construct, Install, Own, Operate, Maintain and Otherwise Control and Manage a 345,000-volt Electric Transmission Line from Palmyra, Missouri, to the Iowa Border and an Associated Substation Near Kirksville, Missouri.	)	File No. EA-2015-0146

AFFIDAVIT OF DENNIS D. KRAMER

STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

Dennis D. Kramer, being first duly sworn on his oath, states:

1. My name is Dennis D. Kramer. I work in the City of St. Louis, Missouri, and I am employed by Ameren Services Company as Manager of Transmission Policy and Planning.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Ameren Transmission Company of Illinois consisting of 16 pages, and Schedule(s) DDK-01 all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

Dennis D. Kramer

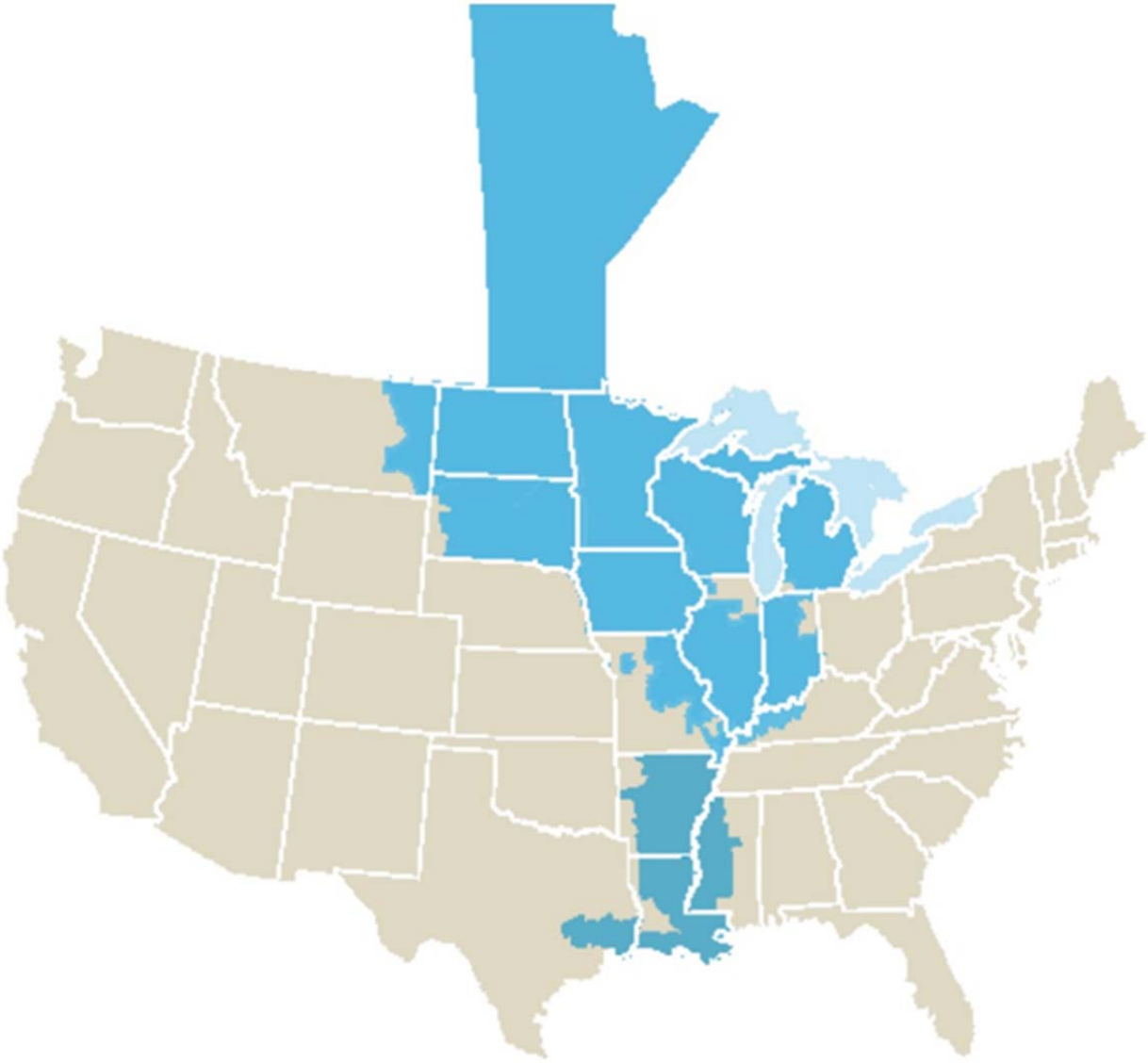
Subscribed and sworn to before me this 27th day of May, 2015.

LINDA JAMES
Notary Public - Notary Seal
State of Missouri
Commissioned for St. Louis City
My Commission Expires: February 10, 2018
Commission Number: 14579043

Notary Public

My commission expires: 2/10/18

MISO FOOTPRINT MAP



SCHEDULE DDK-01